



BENEFICIARY USE OF SERVICES OVER TIME



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1.1 Statement of the Problem

Medicare Part B spending has been growing at double-digit rates throughout the 1980's, even during the period of the fee freeze. Some researchers have attributed the growth to increased patient demand which in turn may be due to several factors. One factor is lower real prices faced by beneficiaries. The dramatic increase in assignment, which began in late 1984 with the introduction of the participating physician program, has lowered out-of-pocket liability for many patients. The actual magnitude of this reduction is unknown, however, as some physicians may have been unwilling or unable to actually collect the balance bill portion on unassigned claims. Changes in the characteristics of Medicare beneficiaries, such as the number of new enrollees, their geographic distribution, and the presence of "Medi-Gap" coverage, are other examples of demand-side changes that have been suggested as contributing to the growth in Part B spending.

Other researchers have argued, however, that the rapid growth in spending has been driven by physicians themselves. Increased competition may have led physicians to supply more services to offset declining numbers of patients per physician. Growth in the use of expensive new technologies, like MRI, may also be driven by physician decision-making. Consistent with this view is the fact that increases in Part B spending have been concentrated in physician-initiated and physician-referred services, like surgery and diagnostic tests.

To date, most studies of the growth in Part B spending have focussed on aggregate trends at the area level, e.g., total charges per eligible calculated from claims data aggregated to an MSA. Little is known about the characteristics of those beneficiaries receiving services. How much of the increase can be attributed to "new users," how much to greater service intensity, and how much to price inflation? HCFA's Office of the Actuary has shown that both the number of users of Part B services and the number exceeding the deductible have been growing over the last decade. Is the increased spending on physician services due to greater

intensity of spending among those were already using physician services, or it due to a more widespread use of services, with little change in intensity of services per user?

This report sought to examine changes in the patterns of Part B spending over time at the individual beneficiary level, including not only users of physician services, but non-users as well. In particular, we decomposed spending growth into its major components (user rates, services per user, and price per service), and compared rates of change in these components for beneficiaries of varying characteristics.

1.2 Executive Summary

Five years of data were available for study: 1985-1989. We selected a random one percent sample of Medicare enrollees from HCFA's enrollment files, averaging 320,000 individuals per year. All Part B claims for this sample were then obtained from HCFA's BMAD files. In order to accomodate deaths, new enrollees, and within-year coverage changes, each observation was weighted by eligible person-months of coverage for that year.

Part B spending per enrollee increased 53.5 percent in just five years. Spending per enrollee can be decomposed into three components: users per enrollee, services per user, and price per unit of service. Users per enrollee provide a measure of how many Medicare enrollees actually receive Part B services in a given year. Services were measured using a price-weighted quantity index and were calculated using national 1987 allowed charges.

Real growth in access to care was definitely a factor in rising Part B expenditures; user rates grew 10.4 percent over the 1985-1989 period. In 1985, almost 76 out of every 100 enrollees received at least one Part B service; by 1989, this had grown to almost 84 out of every 100.

Service intensity grew even more rapidly: 28.3 percent. Once seen by the physician, patients were receiving many more services than before. Subsequent analyses revealed intensity growth for all types of service, with above average rates of increase for radiology, pathology, and specialized diagnostic tests, especially cardiac tests.

Finally, the average Medicare allowed charge per service rose 8.6 percent over the same five year period. This increase is a direct reflection of regulatory updates over this period (fees were frozen over the 1985-86 period). By comparison, the medical care component of the Consumer Price Index rose 31.5 percent over the same period.

While levels of use and service intensity varied across beneficiaries with varying sociodemographic characteristics, rates of growth were surprisingly similar over this five-year period. Thus, while all types of enrollees enjoyed greater access to Medicare Part B services in 1989 than in 1985, pre-existing "utilization gaps" between blacks and whites, for example, or between urban and rural residents remained unchanged.

Multiple regression was used in order to explain why Part B expenditures have been growing. A cross-section, time-series model was estimated with the individual enrollee as the unit of observation and levels of Part B spending as the dependent variable. Because of concern over the possible simultaneity of two important supply-side variables (physicians per capita and area assignment rates), we estimated the results using two-stage least squares.

Changes in per capita incomes, sociodemographic characteristics, and the geographic composition of Medicare enrollees were found to explain over one-third (38.4%) of the total increase in Part B spending over the five-year time period. The supply of physicians and hospital beds had no impact on Part B spending, until Medicare HMO enrollments and assignment rates were also included in the model.* Their inclusion, especially that of assignment rates, produced large, statistically significant coefficients for both supply variables: negative in the case of physicians per capita (contrary to predictions) and positive in the case of hospital beds per capita (consistent with predictions). However, we can not rule out multicollinearity as a factor in these results.

The proportion of Medicare eligibles enrolled in HMOs had a strong, positive impact on spending, suggesting that HMOs may be cream-skimming, leaving the sicker (and more

*All area variables were measured at the state-urban/rural level.

expensive) Medicare patients in the fee-for-service sector. If so, then current HCFA initiatives to encourage capitation of Medicare enrollees could have unintended, cost-increasing, side effects.

Finally, assignment rates also had a strong, positive effect on spending. One explanation is that physicians are more willing to accept more patients on assignment, and provide more services to those patients, when Medicare allowed charges are higher. However, our use of two-stage least squares should have controlled for this endogeneity. An alternative explanation is that physician willingness to accept assignment encourages patient demand. This is the argument made by Holahan *et al.* (1990) who found a similar effect. It should be noted, however, that inclusion of assignment rates in our regression model all but eliminated the significant time trends observed in alternative specifications. We thus suspect that the assignment variable, which increased dramatically over this period, may be picking up the time trend as much as the effects of assignment practice *per se*.

1.3 Overview of Report

Chapter 2 describes the data sources used, and the methods employed for file construction. Empirical results are presented in Chapters 3 and 4. Descriptive trends are shown in Chapter 3. Regression results using two-stage least squares are provided in Chapter 4.

2.1 Sources

This project used data from several different sources. The first and most important sources are the so-called "linked files" that HCFA has created for a nationally representative five percent sample of all Medicare beneficiaries (100% of ESRD eligibles). These linked files include merged information from the HISKEW (eligibility information), BMAD (Part B), MEDPAR (Part A Inpatient), and Outpatient files. Each file includes all claims for sampled beneficiaries.

Because we wanted to sample based on total enrollees, not users of services, we relied on HCFA's "denominator" files for sample selection. These denominator files consist of all Medicare eligibles for each of the study years. Demographic and eligibility data were available for each enrollee: age, sex, race, residence, months of Part A and Part B eligibility, HMO enrollment, joint Medicaid eligibility, and date of death.

2.2 Sample Definition

Because of the sheer volume of the linked data set (for example the 1988 series spans 32 tape reels and contains over 22 million records) we chose to focus on a one percent national sample, selected using the last two digits of the beneficiary HIC number. This process of sample selection also eliminates the over-representation of ESRD beneficiaries, which are based on a 100 percent sample in the linked data set.

Much of the focus of this project is on patterns of BMAD (Part B) allowed charges over time and across different classes of beneficiaries. In order to focus the analysis, we elected to include in our sample only those beneficiaries who had at least some eligibility for Part B coverage in a given year and were not enrolled in an HMO. Hence, we excluded from the tables presented here beneficiaries who were eligible only for Part A (but not Part B) coverage throughout the year, as well as those who were enrolled in an HMO for all or part of the

year. Because this exclusion was done on a year by year basis, beneficiaries were included in the sample for any of the five years in which they were eligible for at least one month of Part B coverage and not in an HMO during the year. The sample averaged approximately 300,000 beneficiaries per year.

Trends in HMO enrollment and state-to-state differences in HMO enrollment are of interest in their own right. Table A-1 in the appendix displays HMO enrollment by state and urban-rural location for each of the five study years.

2.3 Data Cleaning and Data Quality Issues

Using the linked claims and denominator files for each year, 1985-1989, we first separated each file by its four record types: eligibility records, BMAD, MEDPAR, and outpatient records. Cleaning of each of these files was performed separately before remerging information about each beneficiary.

Beneficiaries residing outside of the 50 states and Washington DC were dropped because of idiosyncratic coding. Urban/rural information was merged onto the denominator files using the enrollee's residential state and county identifiers.

It was discovered that BMAD data for three states was incomplete, perhaps due to changes in carriers. The states were: Connecticut, incomplete in 1985, with 530 BMAD records (.23% of the total records for the year) versus 3,397 (1.45%) records in 1986; Wisconsin, with 920 (.39%) records in 1986 versus 5730 (2.47%) in 1987; and Rhode Island, with 423 (.16%) records in 1989 versus 1345 (.53%) records in 1988. Because this incompleteness does not substantially affect the analysis, we decided to include all states in the analysis despite their incompleteness.

It was discovered that the MEDPAR files included in the linked data set excluded all skilled nursing and specialty facilities (e.g., long-term, rehabilitation, children's, and psychiatric) for all years except for 1985. To ensure comparability across years, records from these facilities for 1985 were dropped. Hence the analysis here includes only short term, acute hospital records for all years.

Outpatient records on the 1985 linked file have been found by others to be unreliable, so we replaced those records with more recent data obtained from HCFA. Since there is no allowed charge variable on the outpatient records, reimbursements were used to approximate allowed charges.

After cleaning and manipulation, the four files for each year were merged together to have one record per person per year, with each beneficiary appearing in each year for which he or she was eligible for at least some part B reimbursement.

2.4 Construction of Quantity Index

A major policy concern has been that rising Part B expenditures are largely due to volume, above and beyond that due to the growth in Medicare eligibles or that due to updates in prevailing charges. The disaggregated nature of our claims data is a major strength in that it allows us to pinpoint the kinds of services that have risen at disproportionate rates. The methodological problem with such disaggregation is how to combine services to get an overall picture of volume growth.

To do this, we constructed a price-weighted volume index, using Medicare Part B allowed charges as weights. The weights were obtained by calculating national average allowed charges for each unique combination of type of service, procedure code, and modifier, using the 1987 BMAD procedure file. These values were then merged on (by type of service, procedure code, and modifier) to each of the Part B claims in our sample for each year.

2.3 Methods

In order to accommodate deaths, new enrollees, and enrollees changing their coverage at some time during the year, the fundamental unit of analysis is an eligible person-month. The number of eligible person-years in a given category was calculated by summing up the number of eligible person months and dividing by twelve. Hence a person eligible for half

of a calendar year is counted as contributing one half of an eligible person-year, while a person eligible for the entire year contributes a full person-year.

For much of the analysis in this report, we total expenditures per eligible into three terms using the following identity:

$$\frac{\text{Expenditures}}{\text{Eligibles}} = \frac{\text{Users}}{\text{Eligibles}} * \frac{\text{Services}}{\text{Users}} * \frac{\text{Expenditures}}{\text{RVUs}}$$

Expenditures are simply total allowed charges. Eligibles are calculated as the sum of eligible person months divided by twelve. The numerator of the first term is defined as the number of beneficiaries with positive values for the service being considered. The last two terms decompose use into quantity and price terms. Total services divided by the number of users gives the average quantity per user, while expenditures divided by services gives a price relative to the national average in the base year 1987.

By comparing the decomposition across two years, the most important factors underlying any observed increases in expenditures can be identified. If there were no compounding then it would be true that the percentage change in per enrollee expenditures was the sum of the percentage changes in the three right hand terms. Because of compounding, the sum is not exactly equal to the percentage change in the total. For this reason, percent changes in the three terms on the right hand will not add up directly to give the percentage change in expenditures per enrollee.

In addition to this important decomposition, we also report simple means and percentages for key subgroups of beneficiaries and expenditures. A multiple regression analysis is also performed in order to control for covariates when examining the relationship between demographic variables and physician expenditures. The specification of the regression model is provided below in Chapter 4.

3.1 Trends in Use of Part B Services

3.1.1 Decomposition of Overall Spending Growth

Part B expenditures per enrollee increased 53.5 percent in just five years, from \$736 to \$1,130 per enrollee (Table 3-1). Spending per enrollee can be decomposed into three component parts: users per eligible (U/E), services per user (S/U), and price per unit of service (P/S). Users per eligible provide a measure of how many Medicare enrollee actually receive Part B services in a given year. Services are measured, using the price-weighted quantity index described earlier; they are expressed as national 1987 prices.

User rates grew 10.3 percent over this period. In 1985, almost 76 out of every 100 Medicare enrollees received at least one Part B service; by 1989, this had grown to almost 84 out of every 100. This increase is undoubtedly a function of two factors: (1) real growth in access to care; and (2) increased submission of claims.*

Service intensity grew even more rapidly: 28.3 percent. Once seen by the physician, patients are receiving many more services than before: what kinds of services and from what kinds of providers will be examined in detail below.

Finally, the average Medicare allowed charge per service rose 8.4 percent over the same five years. This increase is a direct reflection of MEI updates over this period; note, for example, the small change in price per service from 1985 to 1986, during most of which time Medicare fees were frozen.

Of the three components, services per user appear to have had the largest impact on total spending per enrollee. If service intensity had remained unchanged from 1985 to 1989, Part B expenditures would have increased "only" 20 percent, as compared with the actual increase of 54 percent. By contrast, spending per enrollee would have still grown 39 percent

*Historically, some Medicare patients, not expecting to exceed the Part B deductible, did not bother to submit their claims, leading to an underestimate of the true user rate. With the dramatic increase in assignment rates and subsequent filing of claims by physicians and not patients, the number of unsubmitted bills is believed to have fallen.

even if user rates had remained constant. Similarly, increases in both user rates and service intensity would have produced a 42 percent growth in spending, even if prices had remained at their 1985 levels.

3.1.2 Changes by Sociodemographic Group and Geographic Location

Table 3-2 presents Part B expenditures per enrollee by year for Medicare enrollees stratified by a wide range of demographic characteristics. The most striking observation is that rates of increase are virtually identical across all of these categories.* Spending per eligible grew 50-55 percent for both old and young enrollees, males and females, blacks and whites, and for both urban and rural residents. Somewhat higher rates of growth were observed for enrollees living in the South and Mid West, but this appears to be largely a "catch-up" phenomenon; the net effect is to narrow inter-regional differences in spending.

Variations in levels of spending across these categories are generally consistent with expectations and previous research. Because expenditures will vary in part because of geographic location (e.g., note the higher levels in urban areas, and the West), these differences do not necessarily imply greater access for some enrollees compared with others. We can assess this more directly, however, when we compare user rates and service intensity in the tables that follow.

Table 3-3 examines trends in user rates for the same beneficiary categories. There was little variation in rates of change by category, although growth was slower among those beneficiaries with higher probabilities of use initially (e.g., ESRD enrollees and those with dual Medicare-Medicaid coverage, both groups with greater "need" for care). Despite similar rates of increase in users per eligible, use rates for black Medicare enrollees continued to lag behind those for white enrollees. In 1985, white enrollees were 10 percent more likely to receive at

*While spending grew considerably more slowly for ESRD eligibles, this is an artifact of their very high absolute levels of use to begin with.

least one Part B service, compared with blacks (0.77 vs. 0.70). By 1989, both more white and more black enrollees received services, but the gap in user rates remained unchanged: 0.85 vs. 0.77.

Growth in service intensity over time for these same groups is shown in Table 3-4. Rates of increase were somewhat higher for female enrollees and for those living in the South, both groups with comparatively lower baseline levels of use. By 1989, considerable variation in service intensity still existed across geographic regions; Medicare patients in the West, for example, received 15 percent more services than their peers in the Mid West, and those living in urban areas received 21 percent more than patients in rural areas.

3.1.3 Trends in Utilization by Type of Service

Increased spending for surgery and for diagnostic testing appear to be largely responsible for the more than 50 percent increase in total expenditures per enrollee. As shown in Table 3-5, rates of increase were particularly large for diagnostic radiology (64%), pathology (95%), and for special diagnostic tests (80%).* These three types of service account for over one-quarter (28%) of the nearly \$400 jump in spending from 1985 to 1989. Although spending on surgery and visits** increased somewhat more slowly than that for these diagnostic services, each of these types of service accounted for almost as large a share of the overall increase: 25 percent.

Other services whose expenditures increased relatively more rapidly included therapeutic radiology, ambulances, supplies, nonphysician services (chiropractors, podiatrists, psychologists, etc.), and "other" (a residual category that is primarily composed of local codes that could not be assigned to a type of service category). Because the absolute dollars associated with these services are relatively small, however, these large increases are less important in explaining total spending growth.

*This category includes all of the diagnostic tests (excluding cardiac catheterization) found in the 90000 series of CPT-4. It is disproportionately composed of cardiac tests, such as ECGs, stress tests, and echocardiography.

**This category includes visits in all settings (office, hospital, etc.) plus selected other medical care services, i.e., dialysis, chemotherapy, psychotherapy, and other nondiagnostic codes in the 90000 series of CPT-4.

Table 3-6 presents user rates and volume per user for each of these types of service.

For ease of presentation, we show only the two end years (1985 and 1989) here. With one exception, user rates grew for each of these types of service. The proportion of Medicare eligibles receiving at least one surgical service, for example, grew 22 percent during this five year period. Also noteworthy is the increase in the number of enrollees receiving some type of diagnostic service: radiology, pathology, or special test. Five out of every 10 eligibles received at least one lab test in 1985; by 1989, that number had grown to 6 out of 10.

The one evidence of decline in use was for assistant surgery. This reflects changes during this period regulating when such assistants may be used.

Service intensity also grew for all types of service, although the rates of increase were relatively low for consultations, assistants at surgery, and for nonphysician services, and were actually unchanged for DME. Again, there were particularly rapid increases in the per user number of x-rays, lab tests, and special tests.

3.1.4 Changes By Physician Specialty

Rates of spending grew most rapidly for cardiologists and other medical specialists, essentially doubling in just five years (see Table 3-7). These medical specialists provide many of the same services that were shown to have increased rapidly: surgery (cardiac catheterization, skin lesion excision, all kinds of endoscopy, etc.), and special tests (echocardiography, cardiac stress tests, etc.) Expenditures also grew rapidly for services provided by ophthalmologists, thoracic surgeons, psychiatrists, and by radiologists, anesthesiologists, and pathologists.

The proportion of enrollees seeing each of these specialties is growing over time, even general and family practitioners whose numbers have been falling relative to specialists (Table 3-8). The trend is clearly towards more specialized physicians, however, with user rates increasing much more rapidly for cardiologists and other medical specialists than for internists and GPs/FPs. The probability that a Medicare enrollee would see a cardiologist, for example, increased 44 percent in just five years.

Not only are more enrollees seeing these specialists, but they also are receiving more services from them. The average patient visiting a cardiologist, for example, received 21 percent more services than the typical patient visiting a cardiologist in 1985. The one exception on Table 3-8 is for urologists where service intensity actually declines slightly. This is probably due to the decline in prostate surgery over this same time period; TURPs, which are the procedure most frequently performed by urologists on Medicare patients, began to fall towards the end of this time period.

Spending for ophthalmologists' services is particularly interesting, because this is the only specialty for whom allowed charges per service actually fell. Charges per service declined 6 percent from 1985 to 1989 (not shown), presumably due to the payment reductions for cataract surgery made in January 1987 and again in April 1988. Despite falling relative prices, total ophthalmology charges per enrollee increased 53 percent (recall Table 3-7). This appears to be due to both increased initial use of ophthalmology services (34%) and increased service intensity (22%).

3.1.5 Trends by Location of Service

With the implementation of PPS and the growth of outpatient surgical facilities, there has been a marked shift of Part B expenditures from inpatient to outpatient settings. We see that here, as spending per enrollee doubles in OPD/ASC locations and increases 70 percent in physicians' offices (Table 3-9).

While use has increased in ambulatory settings, there is no corresponding decline in the frequency of use for inpatient services. The proportion of eligibles receiving Part B inpatient services has remained constant at 24 percent (Table 3-10). There has, however, been relatively slower growth of service intensity in the inpatient hospital setting: "only" 17 percent versus 54 percent in OPDs/ASCs.

3.2 Trends in Medicare Participation and Assignment Rates

3.2.1 Overall Trends

At least part of the increased use of Part B services has been attributed to the increasing assignment rate which effectively reduces the net price of care to enrollees. From Table 3-11,

it is clear that the assignment rate (the sum of the first two columns) has grown dramatically: from 66 to 82 percent of allowed charges. This appears to have been the result of both increased participation rates and increased willingness by nonparticipants to accept assignment.

By 1989, the majority of Medicare enrollees (72%) received at least one service from a participating physician, up 41 percent from 1985 (see Table 3-12). A surprisingly large number of enrollees, however, still received at least some services from physicians not accepting assignment, almost one-half (48%).

3.2.2 Changes by Sociodemographic Characteristics

Virtually all beneficiaries appear to have benefitted from rising assignment rates (see Table 3-13). Assignment rates skyrocketed in the North Central region of the country, from a well below-average rate of 49 percent in 1985 to a level comparable to that of the U.S. as a whole in 1989 (79%). Cross-sectional variation in assignment rates is consistent with the literature.

Assignment and participation rates were also calculated by state and by urban-rural location within state. These trends are displayed in Tables A-2 and A-3, respectively, in the Appendix.

3.3 Is There a New Retiree Effect?

Some policymakers have wondered whether new retirees contribute disproportionately to Part B spending and utilization, by "waiting" until retirement to undergo surgery and the like. Two factors could be responsible for such waiting: (1) copayments may be lower under Medicare than under the worker's private insurance; and (2) the worker may be unable or unwilling to take the time off from work to undergo the procedure.

To examine this, we compared per eligible spending and user rates by age, first for men (Table 3-14) and then for women (Table 3-15). If beneficiaries defer medical care use until retirement, then we should observe higher rates of use for enrollees aged 65 and 66 than for those aged 67, 68, or 69. Instead, the clear pattern is of steadily increasing use for both men and women until beneficiaries are well into their 80's.

Because both the dollars and the time associated with surgery are larger than for visits, it is plausible that waiting might be observed only for surgery. We examined spending and user rates for surgery and visits separately. Again, however, we observe a linear growth in use as beneficiaries age from 65 to 69, with a continuing increase until their early to mid-eighties.

3.4 Shifts in Spending Distribution Over Time

We know from Table 3-1 that the proportion of Medicare eligibles actually using services has grown over time. To what extent has this also reduced distributional inequities in spending per eligible? To examine this, we categorized spending per eligible into nine groups, as shown on Table 3-16: none, less than \$500, \$501-\$1,000, etc. The size distribution of eligibles, users, and total allowed charges was then calculated across these spending categories. Because the distribution will shift over time because of cost inflation alone, dollars were standardized by multiplying 1989 expenditures by the ratio of average spending per eligible in 1985 to average spending per eligible in 1989. The 1985 size distributions are shown in the top half of Table 3-16, and those for 1989 in the bottom half of the table.

The distribution of Part B dollars across eligibles has definitely grown more equitable over time. The percent of Medicare eligibles with no services shrank from 24.4 percent in 1985 to 16.5 percent in 1989. In 1985, only 10 percent of all eligibles (representing 13.3% of users) accounted for 60 percent of the total dollars. (This was calculated from summing the bottom five rows of the distribution, i.e., those eligibles spending at least \$2,000 during the year.) By 1989, while nine percent of eligibles spent \$2,000 or more, they accounted for "only" 52 percent of the total dollars.

3.5 Impact of Hospital OPD Payments on Total Part B Spending

Most researchers and policy analysts think solely of physician and supplier services when they think of Part B spending. In fact, however, hospital outpatient department (OPD) services are also covered by the Part B premium. Table 3-17 compares OPD payments for the same demographic groups examined in earlier tables. OPD payments underwent an almost identical rate of growth: 55.8 percent from 1985 to 1989, compared with 53.5 percent for

physician and supplier services. Rates of growth were particularly high in the South and in rural areas. While OPD spending increased for most subgroups of Medicare enrollees, there was a marked reduction for ESRD beneficiaries (-13%).

Hospital OPD services may substitute for similar services provided in physicians' offices. This may be particularly true for joint Medicaid eligibles and other enrollees living in urban areas where OPDs are more commonly used. Adding in OPD payments to Part B allowed charges ("traditional" Part B spending) raises total Part B outlays by 21 percent (see Table 3-18). This percent remained constant over the study period, as both Part B allowed charges and OPD payments were growing at equal rates.

Adding in OPD payments to Part B allowed charges definitely affects comparisons across subgroups of Medicare enrollees. Earlier in Table 3-2, we saw that Part B spending was roughly equal for white and black beneficiaries; after accounting for OPD payments, total outlays are approximately 9 percent higher for black beneficiaries (see Table 3-19).

Based on traditional Part B alone, ESRD patients "cost" about five times as much as disabled beneficiaries; after adding in OPD payments, the differential almost doubles (\$14,132 for ESRD, versus \$1,451 for the disabled). Surprisingly, however, total spending remains virtually unchanged for ESRD patients over the five year study period.

Finally, regional variation in spending per eligible is narrowed somewhat after we account for hospital OPD payments. Based on traditional Part B alone, for example, beneficiaries residing in the West spent 31 percent more than their peers in the North Central part of the country. Adjusting for OPD services reduces this differential slightly (to 28%).

TABLE 3-1

DECOMPOSITION OF SPENDING GROWTH FOR MEDICARE PHYSICIAN SERVICES

	<u>Spending Per Enrollee</u>	=	<u>Users Per Enrollee</u>	*	<u>Services Per User</u>	*	<u>Price Per Service</u>
1985	\$736.30		0.757		927.1		\$1.05
1986	814.97		0.770		1,011.6		1.05
1987	954.18		0.808		1,073.1		1.10
1988	1,019.51		0.812		1,126.7		1.12
1989	1,130.37		0.835		1,189.2		1.14
%Δ	53.5%		10.3%		28.3%		8.6%

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-2

AVERAGE PART 8 SPENDING PER ELIGIBLE BY YEAR

	1985	1986	1987	1988	1989	1985-1989 % CHANGE
<u>AGE GROUP (Years)</u>						
Less Than 65	\$730.43	\$789.81	\$892.02	\$917.93	\$1,019.14	39.5%
65 to 69	588.16	654.77	774.87	821.21	921.33	56.7
70 to 74	735.87	819.68	959.62	1,040.39	1,143.96	55.5
75 to 79	825.81	933.14	1,098.85	1,177.28	1,292.26	56.5
80 to 84	884.70	959.62	1,121.30	1,213.61	1,352.96	52.9
85 and Up	869.23	941.02	1,109.64	1,184.47	1,306.24	50.3
<u>SEX</u>						
Male	777.20	855.00	1,000.86	1,056.80	1,180.64	51.9
Female	707.18	786.44	920.96	992.96	1,094.76	54.8
<u>MEDICAID ELIGIBILITY</u>						
Yes	975.10	1,087.83	1,261.63	1,368.24	1,456.09	49.3
No	708.14	782.27	917.20	977.26	1,086.06	53.4
<u>RACE</u>						
White	747.97	827.32	967.44	1,045.75	1,147.16	53.4
Black	717.38	790.07	942.30	1,006.61	1,109.10	54.6
Other	736.35	828.19	936.45	993.26	1,079.41	46.6
Unknown	437.88	510.13	608.95	313.44	743.49	69.8
<u>ORIGINAL REASON FOR ENTITLEMENT</u>						
Old Age	711.15	789.75	926.53	993.99	1,102.57	55.0
Disabled	815.65	884.21	1,026.12	1,069.41	1,178.99	44.6
ESRD	4,868.11	5,104.32	5,543.61	5,712.02	5,975.41	22.7
<u>LOCATION</u>						
North East	787.55	879.24	1,019.76	1,029.15	1,153.17	46.4
North Central	650.83	689.91	829.48	896.57	997.51	53.3
South	696.50	768.22	914.28	1,011.49	1,129.61	62.2
West	880.51	1,021.81	1,143.10	1,217.30	1,311.48	49.0
Urban	800.27	888.16	1,031.79	1,099.62	1,218.01	52.2
Rural	571.82	628.25	745.98	804.75	895.04	56.5
<u>OVERALL</u>	736.30	814.97	954.10	1,019.51	1,130.37	53.5

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-3

TRENDS IN USERS PER ELIGIBLE

	1985	1986	1987	1988	1989	1985-1989 % CHANGE
<u>AGE GROUP (Years)</u>						
Less Than 65	0.659	0.676	0.702	0.704	0.730	10.8%
65 to 69	0.710	0.727	0.765	0.776	0.800	12.7
70 to 74	0.779	0.710	0.826	0.829	0.850	9.1
75 to 79	0.806	0.819	0.858	0.860	0.880	9.2
80 to 84	0.818	0.830	0.871	0.871	0.893	9.2
85 and Up	0.814	0.824	0.865	0.863	0.890	9.4
<u>SEX</u>						
Male	0.728	0.740	0.777	0.771	0.805	10.7
Female	0.777	0.792	0.829	0.841	0.856	10.2
<u>MEDICAID ELIGIBILITY</u>						
Yes	0.839	0.849	0.873	0.873	0.882	5.1
No	0.747	0.761	0.800	0.804	0.829	11.0
<u>RACE</u>						
White	0.772	0.785	0.824	0.838	0.852	10.4
Black	0.703	0.723	0.747	0.758	0.774	10.1
Other	0.703	0.713	0.749	0.756	0.766	9.0
Unknown	0.462	0.487	0.533	0.242	0.558	20.7
<u>ORIGINAL REASON FOR ENTITLEMENT</u>						
Old Age	0.760	0.774	0.813	0.819	0.842	10.7
Disabled	0.730	0.743	0.772	0.769	0.749	8.8
ESRD	0.923	0.934	0.930	0.924	0.938	1.6
<u>LOCATION</u>						
North East	0.747	0.799	0.815	0.814	0.827	10.6
North Central	0.762	0.723	0.805	0.812	0.839	10.1
South	0.756	0.772	0.799	0.808	0.837	10.6
West	0.761	0.801	0.820	0.817	0.837	10.0
Urban	0.759	0.778	0.811	0.813	0.834	9.9
Rural	0.751	0.752	0.799	0.809	0.837	11.6
<u>OVERALL</u>	0.757	0.770	0.808	0.812	0.835	10.4

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BHAD claims files.

TABLE 3-4

TRENDS IN VOLUME PER USER

	1985	1986	1987	1988	1989	1985-1989 % CHANGE
<u>AGE GROUP (Years)</u>						
Less Than 65	999.9	1,064.0	1,090.9	1,100.5	1,158.8	15.9%
65 to 69	809.9	879.9	936.9	964.7	1,028.9	27.0
70 to 74	911.2	1,000.6	1,066.6	1,136.0	1,192.3	30.9
75 to 79	982.5	1,094.1	1,170.3	1,238.9	1,300.3	32.4
80 to 84	1,021.6	1,102.2	1,169.7	1,255.6	1,332.6	30.4
85 and Up	991.5	1,076.8	1,143.8	1,213.5	1,270.1	28.1
<u>SEX</u>						
Male	1,016.0	1,100.2	1,165.3	1,223.0	1,277.9	25.8
Female	867.8	952.6	1,011.7	1,063.9	1,130.0	30.2
<u>LOCATION</u>						
North East	944.4	995.6	1,067.8	1,066.0	1,165.9	23.5
North Central	865.1	971.2	1,006.2	1,062.2	1,113.4	28.7
South	920.6	995.4	1,074.0	1,151.0	1,218.9	32.4
West	1,014.2	1,125.8	1,181.7	1,260.3	1,277.2	25.9
Urban	975.2	1,060.5	1,123.9	1,181.4	1,248.2	28.0
Rural	802.1	882.5	934.9	979.2	1,031.0	28.5
<u>MEDICAID ELIGIBILITY</u>						
Yes	1,060.9	1,168.5	1,243.6	1,329.3	1,376.0	29.7
No	909.4	990.6	1,050.7	1,100.0	1,162.1	27.8
<u>RACE</u>						
White	928.6	1,013.2	1,074.0	1,127.4	1,190.0	28.2
Black	930.1	1,001.7	1,083.2	1,133.2	1,196.4	28.6
Other	886.2	976.7	1,013.3	1,073.7	1,129.7	27.5
Unknown	869.1	1,002.4	1,038.1	1,097.3	1,184.6	36.3
<u>ORIGINAL REASON FOR ENTITLEMENT</u>						
Old Age	899.4	983.7	1,044.6	1,101.0	1,161.6	29.2
Disabled	1,045.3	1,117.4	1,177.7	1,214.7	1,277.4	22.2
ESRD	3,512.8	3,868.5	4,123.3	3,952.8	4,155.1	18.3
<u>OVERALL</u>	927.1	1,011.6	1,073.1	1,126.7	1,189.2	28.3

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-5

SPENDING PER ELIGIBLE BY TYPE OF SERVICE

<u>Type of Service</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1985-89 % Change</u>
Visits	\$196.97	\$209.20	\$246.75	\$258.92	\$289.07	46.8%
Surgery	222.89	255.26	294.70	307.34	326.15	46.3
Anesthesia	31.00	34.85	36.86	36.89	41.69	34.5
Assistant Surgery	11.32	9.88	10.26	10.60	11.39	0.6
Consultations	22.80	25.85	30.96	32.19	32.97	44.6
Diagnostic Radiology	63.00	73.84	87.79	96.45	103.57	64.4
Therapeutic Radiology	8.24	10.08	12.41	13.73	16.85	104.5
Pathology	40.00	46.97	56.49	64.30	78.12	95.3
Special Tests	48.92	56.99	69.81	77.03	87.95	79.8
DME	41.71	40.49	44.49	47.05	47.20	13.2
Ambulance	13.56	16.71	19.43	20.57	23.81	75.6
Non-DME Supplies	20.15	21.97	28.25	33.39	39.26	94.9
Non-Physician Services	6.41	7.29	10.27	14.63	13.93	117.3
Other	9.34	5.61	5.70	6.41	18.40	96.9
TOTAL	736.30	814.97	954.18	1,019.51	1,130.37	53.5

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-6

USERS PER ELIGIBLE AND VOLUME PER USER: TRENDS BY TYPE OF SERVICE

<u>Type of Service</u>	<u>USERS PER ELIGIBLE</u>			<u>VOLUME PER USER</u>		
	<u>1985</u>	<u>1989</u>	<u>% Change</u>	<u>1985</u>	<u>1989</u>	<u>% Change</u>
Visits	0.710	0.800	12.7%	269.08	227.30	18.4%
Surgery	0.324	0.394	21.8	819.63	707.46	15.9
Anesthesia	0.093	0.119	28.0	351.94	309.98	13.5
Assistant Surgery	0.031	0.028	-10.5	413.65	393.10	5.2
Consultations	0.145	0.172	18.7	178.60	167.09	6.9
Diagnostic Radiology	0.445	0.516	16.2	200.52	152.69	31.3
Therapeutic Radiology	0.008	0.008	10.0	1,344.87	956.12	40.7
Pathology	0.504	0.604	19.9	124.94	82.60	51.3
Special Tests	0.387	0.461	19.1	160.43	126.09	27.2
DME	0.052	0.056	8.4	763.94	767.58	-0.5
Ambulance	0.055	0.071	29.9	302.97	254.64	19.0
Non-DME Supplies	0.144	0.179	24.5	107.46	82.79	29.8
Non-Physician Services	0.030	0.047	53.8	139.06	136.84	1.6
Other	0.075	0.079	5.0	203.46	138.05	47.3
TOTAL	0.757	0.835	10.4%	1,189.15	927.10	28.3%

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-7

SPENDING PER ELIGIBLE BY SPECIALTY

<u>Specialty</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1985-89 % Change</u>
General & Family Practice	\$60.99	\$61.45	\$70.04	\$72.43	\$80.69	60.0%
Internal Medicine	116.13	119.35	140.76	144.12	158.02	36.1
Cardiology	36.92	42.49	54.74	61.72	72.37	96.0
Other Medical Specialties	35.71	42.74	52.93	58.28	71.90	101.4
General Surgery	52.68	56.38	62.22	62.39	67.22	27.6
Neurosurgery	5.86	6.71	6.54	7.93	8.32	42.1
Ophthalmology	74.40	84.45	99.42	107.65	114.16	53.4
Orthopedic Surgery	32.95	36.73	42.19	43.58	48.82	48.2
Thoracic Surgery	19.97	23.55	26.65	27.05	31.07	55.6
Urology	23.47	25.51	29.73	30.59	33.01	40.6
Other Surgical Specialties	14.92	16.27	18.83	19.91	21.73	45.7
Radiology, Anesthesiology, and Pathology	88.18	100.71	119.44	125.85	141.05	60.0
Multi-Specialty Groups	36.83	46.53	50.74	59.81	53.17	44.4
Psychiatry	8.67	9.37	11.14	11.96	14.61	68.6
Other	128.63	142.74	168.80	186.24	214.22	66.5
TOTAL	736.30	814.97	954.18	1,019.51	1,130.37	53.5

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-8

USERS PER ELIGIBLE AND VOLUME PER USER: TRENDS BY SPECIALTY

Specialty	USERS PER ELIGIBLE			VOLUME PER USER		
	1985	1989	% Change	1985	1989	% Change
General & Family Practice	0.361	0.446	23.6%	294.84	250.38	17.8%
Internal Medicine	0.353	0.405	14.8	298.38	277.60	7.5
Cardiology	0.120	0.173	44.0	336.79	277.90	21.2
Other Medical Specialties	0.117	0.172	47.0	320.5	265.52	20.7
General Surgery	0.116	0.124	7.2	512.98	478.61	7.2
Neurosurgery	0.010	0.012	18.1	642.19	570.63	12.5
Ophthalmology	0.201	0.269	34.1	413.95	339.56	21.9
Orthopedic Surgery	0.071	0.089	26.6	526.48	491.06	7.2
Thoracic Surgery	0.017	0.022	28.8	1,312.59	1,164.80	12.7
Urology	0.062	0.078	24.9	396.15	409.44	-3.3
Other Surgical Specialties	0.085	0.106	24.2	191.52	182.53	4.9
Radiology, Anesthesiology, and Pathology	0.361	0.446	23.6	294.84	250.38	17.8
Multi-Specialty Groups	0.142	0.177	25.1	270.19	254.04	6.4
Psychiatry	0.021	0.028	35.8	338.31	268.37	26.1
Other	0.421	0.552	31.1	333.27	278.05	19.9
TOTAL	0.757	0.835	10.4%	1,189.15	927.10	28.3%

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-9

SPENDING PER ELIGIBLE BY PLACE OF SERVICE

<u>Place of Service</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1985-89 % Change</u>
Office	\$208.41	\$238.46	\$284.17	\$312.56	\$353.84	69.8%
Inpatient Hospital	329.49	345.68	389.56	394.37	423.01	28.4
OPD/ASC	89.88	115.08	143.16	162.44	185.67	106.6
Nursing Home	12.99	13.98	18.01	20.42	22.86	76.0
Other	95.53	101.76	119.28	129.71	144.98	51.8
ALL	736.30	814.97	954.18	1,019.51	1,130.37	53.5%

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-10

USERS PER ELIGIBLE AND VOLUME PER USER: TRENDS BY PLACE OF SERVICE

<u>Place of Service</u>	<u>USERS PER ELIGIBLE</u>			<u>VOLUME PER USER</u>		
	<u>1985</u>	<u>1989</u>	<u>% Change</u>	<u>1985</u>	<u>1989</u>	<u>% Change</u>
Office	0.687	0.780	13.5%	\$416.65	\$322.16	29.3%
Inpatient Hospital	0.237	0.240	1.3	1,454.40	1,235.45	17.7
OPD/ASC	0.325	0.422	30.0	413.08	268.93	53.6
Nursing Home	0.052	0.066	26.6	295.43	239.96	23.1
Other	0.352	0.454	29.2	274.81	248.18	10.7
ALL	0.757	0.835	10.4%	1,189.15	927.10	28.3%

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-11

TRENDS IN ASSIGNMENT AND PARTICIPATION RATES^a

	<u>Assignment Rate</u>	<u>Participation Rate</u>
1985	65.9%	35.1%
1986	70.7	37.4
1987	75.0	47.9
1988	81.7	59.2
1989	81.8	59.2

^aAll rates are expressed as a percent of allowed charges.

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-12

ACCESS TO PARTICIPATING AND NONPARTICIPATING PHYSICIANS

	<u>1985</u>	<u>1989</u>	<u>Percent Change</u>
<u>Percent of Enrollees With At Least</u> <u>One Service:</u>			
From a Participating Physician	50.9%	71.9%	41.1%
From a Nonparticipant But Accepted on Assignment	46.0	51.7	12.4
From a Physician Not Accepting Assignment	51.5	47.6	-7.5

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BHAD claims files.

TABLE 3-13

CHANGES IN ASSIGNMENT RATES BY DEMOGRAPHIC CHARACTERISTICS

<u>AGE GROUP (Years)</u>	<u>ASSIGNMENT RATE</u>		<u>Percent Change</u>
	<u>1985</u>	<u>1989</u>	
Less Than 65	75.7%	88.5%	16.9%
65 to 69	61.5	79.5	29.4
70 to 74	62.7	80.2	27.8
75 to 79	64.7	80.9	25.0
80 to 84	67.6	82.0	21.4
85 and Up	71.7	84.7	18.2
<u>SEX</u>			
Male	65.3	80.9	24.0
Female	66.4	82.5	24.1
<u>MEDICAID ELIGIBILITY</u>			
Yes	61.6	79.2	28.6
No	92.7	96.3	3.8
<u>RACE</u>			
White	64.0	80.7	26.0
Black	83.9	93.8	11.8
Other	79.8	89.0	11.5
Unknown	68.2	73.6	7.8
<u>ORIGINAL REASON FOR ENTITLEMENT</u>			
Old Age	64.0	80.5	25.8
Disabled	73.5	87.1	18.5
ESRD	93.2	96.6	3.7
<u>LOCATION</u>			
North East	79.6	85.7	7.6
North Central	49.4	79.1	60.1
South	67.5	82.5	22.3
West	65.2	78.9	20.9
Urban	67.1	82.7	23.3
Rural	61.7	78.5	27.1
<u>OVERALL</u>	65.9	81.8	24.1

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-14

DISTRIBUTION OF SELECTED 1989 SPENDING AND USE VARIABLES BY AGE: MALES AGED 65-98

Age	Allowed Charge Per Eligible	Users Per 100 Eligibles	Visit Charges Per Eligible	Visit Users Per 100 Eligibles	Surgical Charges Per Eligible	Surgical Users Per 100 Eligible
65	\$ 767.24	72.62	\$167.69	67.40	\$267.33	32.93
66	850.94	74.79	183.17	69.89	297.22	34.50
67	913.55	76.90	196.31	72.57	302.76	35.13
68	989.35	78.17	213.49	73.50	326.85	36.68
69	1002.66	79.01	218.98	74.82	344.43	38.35
70	1067.03	79.96	229.32	75.70	351.53	38.28
71	1084.44	82.13	238.15	78.38	360.45	40.38
72	1255.85	82.99	276.49	79.69	405.34	42.95
73	1290.04	84.65	277.87	81.53	415.73	43.41
74	1329.50	85.98	296.95	82.44	425.31	43.82
75	1333.46	85.75	319.13	82.73	422.07	44.70
76	1387.88	86.24	324.41	83.49	442.66	46.66
77	1421.31	87.76	345.06	85.13	419.11	46.05
78	1427.00	87.98	354.37	85.42	449.52	46.72
79	1447.40	89.19	359.24	86.07	422.35	47.88
80	1539.62	88.39	385.21	85.62	477.96	48.96
81	1483.32	87.95	376.09	85.28	439.34	48.85
82	1668.01	90.18	421.82	87.98	459.97	51.18
83	1474.52	90.20	397.83	87.83	419.04	47.28
84	1391.68	89.96	375.26	87.49	387.79	48.71
85	1491.84	90.32	424.33	87.34	406.39	47.16
86	1467.05	89.97	428.50	87.65	405.19	47.23
87	1608.31	89.77	448.66	87.21	450.90	50.73
88	1588.65	90.45	427.34	88.44	456.33	48.92
89	1410.43	88.91	405.66	85.79	372.43	49.73
90	1497.29	87.47	452.13	84.89	341.71	48.37
91	1292.26	87.06	381.85	82.80	326.44	45.70
92	1319.26	82.63	443.39	79.87	326.21	43.51
93	1406.35	89.67	436.41	83.57	313.68	45.67
94	1318.81	85.25	441.47	78.77	312.46	42.71
95	1310.39	85.01	375.60	81.34	389.15	46.47
96	1207.20	85.37	323.04	83.08	274.27	46.46
97	894.63	88.10	313.55	84.82	164.27	41.31
98	924.28	66.60	334.61	63.12	124.04	30.25

SOURCE: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-15

DISTRIBUTION OF SELECTED 1989 SPENDING AND USE VARIABLES BY AGE: FEMALES AGED 65-98

Age	Allowed Charge Per Eligible	Users Per 100 Eligibles	Visit Charges Per Eligible	Visit Users Per 100 Eligibles	Surgical Charges Per Eligible	Surgical Users Per 100 Eligibles
65	\$ 752.19	79.62	\$185.02	75.28	\$223.57	32.65
66	754.92	80.52	192.32	76.85	213.63	33.24
67	881.12	82.25	221.76	78.50	252.21	35.56
68	895.49	83.33	224.37	79.76	263.47	36.63
69	883.83	83.71	227.57	79.90	260.64	36.37
70	946.44	85.02	238.42	81.38	272.04	37.24
71	990.27	85.41	244.90	82.57	298.24	38.87
72	1022.61	85.27	260.47	82.25	301.64	38.73
73	1070.85	86.25	274.74	83.03	321.42	41.73
74	1131.82	87.11	284.31	84.41	336.00	41.72
75	1150.62	88.68	287.75	85.83	351.11	43.00
76	1201.53	87.76	306.94	85.00	356.41	43.16
77	1188.11	88.73	309.36	86.44	351.23	43.34
78	1183.48	88.12	320.24	85.51	343.04	42.85
79	1222.99	89.03	328.18	86.50	357.95	45.90
80	1224.89	88.59	332.53	86.36	361.11	44.41
81	1254.79	89.17	340.95	86.47	364.53	44.81
82	1243.71	89.83	347.26	87.45	357.70	45.49
83	1319.42	89.19	367.92	86.40	375.86	45.95
84	1344.58	90.25	384.00	87.91	369.65	46.70
85	1261.80	89.21	380.73	86.54	322.10	45.17
86	1313.02	90.32	399.46	87.11	330.15	46.20
87	1284.01	89.91	385.76	86.84	320.96	46.00
88	1343.56	90.13	405.95	87.23	333.47	46.77
89	1235.50	90.04	391.87	86.82	280.83	44.63
90	1212.16	89.95	383.89	87.37	266.14	43.05
91	1192.38	90.46	398.76	86.65	267.62	44.09
92	1203.43	87.80	379.92	84.60	256.60	44.05
93	1236.90	88.59	394.94	84.89	276.17	43.31
94	1219.24	87.34	394.03	84.71	264.03	42.32
95	1143.00	88.28	364.85	83.37	216.31	41.10
96	1180.88	87.15	401.22	83.39	227.76	39.04
97	1193.71	87.24	421.13	81.16	276.95	36.42
98	872.51	74.81	302.58	69.28	157.31	34.56

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BHAD claims files.

TABLE 3-16

SIZE DISTRIBUTION OF SPENDING PER ELIGIBLE: 1985 AND 1989^a

	PERCENTAGE OF:		
	Eligibles	Users	Total Charges
<u>1985 (\$)</u>			
None	24.4%	0.0%	0.0%
0+ to 500	46.2	60.8	11.8
500+ to 1000	11.0	14.6	11.1
1000+ to 2000	8.5	11.2	17.4
2000+ to 5000	7.9	10.4	34.7
5000+ to 10000	1.9	2.5	18.6
10000+ to 20000	0.3	0.4	5.4
20000+ to 50000	b	b	0.9
50000+	b	b	0.1
<u>1989 (\$)</u>			
None	16.5%	0.0%	0.0%
0+ to 500	52.0	62.3	13.7
500+ to 1000	12.2	14.6	12.9
1000+ to 2000	10.3	12.3	21.9
2000+ to 5000	7.4	8.9	33.7
5000+ to 10000	1.4	1.7	13.8
10000+ to 20000	0.2	0.2	3.3
20000+ to 50000	b	b	0.7
50000+	b	b	0.1

^aColumns may not sum exactly to 100 percent because of rounding.^bLess than 0.05 percent.Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BHAD claims files.

TABLE 3-17

TRENDS IN HOSPITAL OPD PAYMENTS BY DEMOGRAPHIC CHARACTERISTICS

<u>AGE GROUP (Years)</u>	1985	1989	1985-1989
	<u>Reimbursement</u>	<u>Reimbursement</u>	<u>Percent Change</u>
Less Than 65	\$334.76	\$414.39	23.8%
65 to 69	115.51	197.67	71.1
70 to 74	139.67	231.67	65.9
75 to 79	156.15	248.90	59.4
80 to 84	142.95	250.03	74.9
85 and Up	129.22	213.87	65.5
<u>SEX</u>			
Male	173.54	261.18	50.5
Female	149.04	238.84	60.3
<u>MEDICAID ELIGIBILITY</u>			
Yes	297.95	446.06	49.7
No	142.87	221.18	54.8
<u>RACE</u>			
White	147.35	230.85	56.7
Black	279.92	404.80	44.6
Other	266.04	341.41	28.3
Unknown	121.91	244.10	100.2
<u>ORIGINAL REASON FOR ENTITLEMENT</u>			
Old Age	127.91	212.29	66.0
Disabled	182.84	271.77	48.6
ESRD	9,379.06	8,156.87	-13.0
<u>LOCATION</u>			
North East	193.37	255.41	32.1
North Central	152.46	241.32	58.3
South	132.12	233.82	77.0
West	177.61	279.81	57.5
Urban	174.72	261.06	49.4
Rural	119.70	214.14	78.9
<u>OVERALL</u>	159.23	248.11	55.8

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-18

IMPACT OF OPD COSTS ON TOTAL PART B SPENDING PER ELIGIBLE

	<u>1985</u>	<u>1989</u>	<u>Percent Change</u>
Part B Allowed Charges	\$736.30	\$1,130.37	53.5%
OPD Payments	159.28	248.11	55.8
Total Part B	895.53	1,378.48	53.9

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

TABLE 3-19

TRENDS IN TOTAL PART B SPENDING PER ELIGIBLE: SELECTED BENEFICIARY GROUPS^a

	<u>1985</u>	<u>1989</u>	<u>Percent Change</u>
<u>RACE</u>			
White	\$895.32	\$1,378.01	53.9%
Black	997.30	1,513.90	51.8
<u>ORIGINAL REASON FOR ENTITLEMENT</u>			
Old-Age	839.06	1,314.86	56.7
Disabled	998.49	1,450.76	45.3
ESRD	14,242.87	14,132.28	-0.8
<u>MEDICAID ELIGIBILITY</u>			
Yes	1,273.05	1,902.15	49.4
No	851.01	1,307.24	53.6
<u>REGION</u>			
North East	980.92	1,408.58	43.6
North Central	803.29	1,238.83	54.2
South	828.62	1,363.43	64.5
West	1,058.12	1,591.29	50.4

^aIncludes hospital OPD payments.

Source: One percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

4.1 Model and Variable Definitions

The preceding chapter examined overall trends in the use of Medicare Part B services, and explored how these trends varied across a number of different beneficiary and geographic variables. In this chapter we make an effort to explain why these Part B expenses have been growing. To do this, we take advantage of the fact that our data set is at the level of beneficiaries, not aggregated, and estimate a multivariate regression model of Part B spending. This permits us to examine the independent effect of a variety of variables while controlling for other factors that are also changing over time and across beneficiaries.

The basic unit of observation for our regression model was an eligible person year. To conserve computer resources, we used only twenty percent of our one percent national sample (i.e., 0.2 percent of the full population), selecting observations based upon enrollee IDs so as to include the same individuals over the full five years as long as they were eligible. Our final regression model sample included 304,483 observations, reflecting up to five years of observations on approximately 60,000 eligibles. Each observation was weighted by the number of months the beneficiary was eligible for Part B coverage during the year. All standard errors have been adjusted to account for correlation of error terms over time as a result of the use of panel data with up to five years of observations on each beneficiary. (This resulted in an average increase in standard errors of the coefficients of 35 percent.)

We use a specification similar to that used in Holahan *et al.* (1990) and several other studies, in that we estimate linear regression models using Part B spending as the dependent variable. Unlike many of those studies, however, the enrollee him/herself is the unit of analysis, rather than the MSA or other more aggregated unit. We included both demand side and supply side variables as explanatory variables, hence our results should be interpreted as a quasi-reduced form, reflecting the interaction between supply and demand side effects. A list of variable definitions and means is provided in Table 4-1.

The explanatory variables we include are fairly standard, including dummy variables for each beneficiary's gender, race, age group, and several eligibility variables. Dummy variables for each of the four major census regions and for urban/rural areas are included, and may pick up either demand side or supply side differences in spending. Dummy variables for each year are also included in order to pick up any time trends that are not explained by other covariates.

We also used the Area Resource File (ARF) and our own Part B claims data to create five continuous variables defined by state, urban/rural location, and year. The first three of these regional variables have frequently been included by others in their models: per capita income (PCY), physicians per capita (MDS), and hospital beds per capita (BEDS). The last two variables are less commonly used: the proportion of Medicare eligibles enrolled in HMOs in the area (HMO), and area assignment rate (ASSIGN) which is defined as the proportion of allowed charges accepted on assignment. Both of these last two variables were calculated using our own one percent sample for each year and are defined using the urban and rural areas in each state as the units of aggregation.* Tables showing trends in HMO enrollment rates by Medicare enrollees and in assignment rates, by state and urban/rural location, are shown in Appendix tables A-1 and A-2.

As in previous research, we were concerned about possible simultaneity of the two key supply side variables (MDS and ASSIGN), since these variables plausibly might be influenced by as well as influence the levels of Part B spending. Therefore we chose to estimate the results using two stage least squares, while using instruments for these two variables.

*Because our analytical sample was only a one percent sample over five years, we chose not to define the regional variables using MSAs as the unit of aggregation, since there would be too few observation in many MSAs to calculate the averages based on these Part B claims with acceptable levels of precision. We chose to calculate the per capita income, physician, and hospital bed variables using the same units of aggregation in order to be consistent.

Additional exogenous variables used as instruments in the first stage regressions included fifteen demand and supply side variables similar to those used in Cromwell and Mitchell (1986) and Holahan *et al.* (1990).*

Before discussing the model results, it is appropriate to make a few comments in justification of our specification. We chose not to deflate spending in each of the years using either geographic or yearly cost indices, since we were concerned that this might unintentionally eliminate some of the variation in spending that we want to explain. We chose not to use a two part demand model, as in Manning *et al.* (1987), or to use a transformation of the dependent variable (such as the natural logarithm), since not all of our observations were for a full twelve months. Our use of a linear model also simplifies our corrections for simultaneity and correlation of errors, and streamlines the interpretation of results. Given our sample size of over 300,000 observations, our weighted two stage least squares results should not be highly sensitive to the highly skewed nature of the dependent variable, which is a frequent concern with linear regression models.

4.2 Results

Results from our weighted two stage least squares regression models are presented in Table 4-2. Five different models are presented, which differ only in their inclusion of the four key supply side variables (MDS, BEDS, HMO and ASSIGN). Results in the first column reflect a model in which only the demand-side demographic and regional variables are included.

*In addition to all the exogenous variables in the model, the following variables were included in the first stage regressions: percent of population over age 65, unemployment rate, percent of population white, percent of population with four years or more of college, dummy for PPS waiver state, physician practice cost index, Medicare prevailing charge index, percent of hospitals with residency programs, percent of physicians who are teaching, ratio of hospital personnel to hospital beds, percent of all surgeries done in outpatient departments, percent of population voting for Reagan in 1984 (a measure of voter conservatism), and three Medicare carrier variables: the claims investigation rate, claims denial rate, and the average rate of reduction.

The next four columns add successively each of the following variables: MDS, BEDS, HMO, and ASSIGN. We have presented all four versions so as to permit comparisons with previous research and because we are concerned that multicollinearity between these four variables may confound the interpretation of the results.

The individual demographic variables are all statistically significant at the one percent level, have signs in the expected direction, and are insensitive to the inclusion of the four supply side variables. The census region and urban/rural dummies show large regional effects, as has been found by numerous previous studies, with enrollees in the West having the highest Part B spending, and those in the North Central region the lowest. The census region and urban/rural variables are moderately sensitive to the inclusion of the supply side variables, which is not surprising given that these supply side variables vary substantially across regions. The regression model allows us to explore the degree to which observed variation across regions is explained by individual demographic factors. The difference between the highest and the lowest cost regions in column (1) is \$200 versus \$230 in chapter 3, based on a simple comparison of means. Hence, 13 percent of the regional variation is explained by the individual demographic variables.

The model also shows that even after controlling for demographic variables, there are strong differences between urban and rural areas. Based upon column (1) beneficiaries living in urban areas average \$174.32 more in Part B spending, compared with rural enrollees. Even after controlling for the supply differences (col. 5), urban residents spend \$188.62 more than their rural peers.

The yearly dummy variables show strong growth over time in column (1), but less growth than was indicated in the preceding chapter which explored time trends without controlling for changes in beneficiary characteristics. For example, Table 3-1 indicates that average spending per enrollee grew \$394.07 over the period from 1985 through 1989. The estimated coefficients in column 1 of Table 4-2 indicate an increase of only \$242.78. Hence, changes in per capita income, demographics, and the geographic composition of Medicare beneficiaries explain 38.4 percent of the total increase in Part B spending over the period from 1985 to 1989.

Area per capita income (included in natural units, not in logarithmic form) is highly significant, and sensitive to the inclusion of the four supply side variables. Depending on the specification, an increase in a region's average annual per capita income of \$1,000 is associated with an increase of between \$27.83 and \$45.84 per beneficiary per year.

The most interesting, and most difficult to interpret, variables are the four supply side variables. The number of physicians per capita (MDS) is initially negative, small, and insignificant when it is added alone to the regression model. It grows in magnitude and significance as the other supply side variables are added, and in the final column is unexpectedly large. The coefficient of -\$161.89 in the final column indicates that a ten percent increase in the number of physicians per capita (from 1.786 per thousand to 1.965 per thousand) results in an decrease in average Part B spending per eligible of \$28.91, or a 3.3 percent reduction. This coefficient is the reverse of that found in Holahan *et al.* (1990) for overall physician supply, although they did find a negative impact associated with increased numbers of general and family practitioners (as opposed to specialists).

The ratio of beds per capita shows a similar pattern in that when entered in alone, or with physicians, it is small and statistically insignificant. When the assignment variable is added, it becomes large, positive, and highly significant, indicating that in areas with high numbers of beds per capita, Part B spending also tends to be high.

The last two supply side variables added are less commonly included in previous empirical work. Models 4 and 5 include the HMO variable, which measures the proportion of Medicare beneficiaries in HMOs, not all individuals. This shows up with a large positive, and highly statistically significant coefficient. This result needs to be interpreted with caution. It could signify that HMOs are disproportionately likely to locate where Part B costs are high, or it could indicate that HMOs are cream-skimming, and enrolling disproportionate numbers

of lower cost Medicare enrollees.* This latter possibility is explored in Ellis and McGuire (1987) and is one possible concern with encouraging HMO enrollments among Medicare beneficiaries.

The final variable added is the assignment rate (ASSIGN), which measures the proportion of Medicare dollars accepted on assignment in the beneficiary's state and urban/rural location. It shows up with a large and highly significant positive coefficient, suggesting that the dramatic trend toward assignment may have contributed to the increase in Part B spending. It should be noted that when the assignment variable is added, the magnitude of the yearly dummies falls dramatically, and are no longer strictly increasing over the five years. We therefore suspect that the assignment variable, which is strongly trending upward over this period, may be picking up the time trend as much as the effects of assignment practice *per se*.

Although we expected the coefficient on the assignment rate to be positive, we did not anticipate its absolute magnitude. Two explanations for why assignment is positively related to spending can be told. One is that increased acceptance of Medicare services on assignment reduced demand side incentives to restrain use of health services. A second explanation is that high assignment rates are a signal that carrier allowed charges are generous, and hence that physicians are both willing to accept patients on assignment, and eager to provide lots of Part B services. In principal, our use of TSLS should have controlled for this endogeneity of the assignment rate; however in practice it may be doing so imperfectly.

We are surprised by the magnitude of the MDS and ASSIGN variables. We examined their correlations and found modest correlations between these two variables (0.3). We suspect collinearity may partially explain the large size of these coefficients, and possibly that these variables may be picking up effects from other omitted variables.

*If it is the former, then we would have expected the size of the coefficient to shrink and the significance level to fall when we treated the HMO variable as endogenous and used instruments for it. In fact the size of the coefficient remained similar when we tried this.

Overall the regression model does only moderately well at predicting Part B spending, achieving an R-square of only .059 in Model 5. There is still an enormous amount of unexplained variation in Part B expenditures. Despite this, the model does better than many other regression models that have tried to predict total annual costs (including both Part A and Part B) but often explain as little as one percent of the variability (see, e.g., Ash et al. 1989).

TABLE 4-1

VARIABLE DEFINITIONS AND MEANS

<u>Variable Name</u>	<u>Definition</u>	<u>Mean</u>
PTBS	Part B allowed charges per enrollee (\$)	886.1831
MALE	Enrollee is male	0.4147
BLACK	Enrollee is black	0.0845
AGELT 65	Enrollee is less than 65 years old	0.1207
AGE 70-74	Enrollee is 70-74 years	0.2323
AGE 75-79	Enrollee is 75-79 years	0.1726
AGE 80-84	Enrollee is 80-84 years	0.1115
AGE 85+	Enrollee is 85 years or older	0.0876
DISABLED	Original reason for Medicare entitlement was disability	0.1430
ESRD	Enrollee has end-stage renal disease	0.0040
B-ONLY	Enrollee only has Part B coverage (no Part A)	0.0177
MEDICAID	Enrollee is also Medicaid-eligible	0.1083
NO_CENTRAL	Enrollee lives in the North Central region	0.2594
SOUTH	Enrollee lives in the South	0.3520
WEST	Enrollee lives in the West	0.1622
URBAN	Enrollee lives in an MSA	0.7265
YR_86	Dummy variable if year = 1986	0.1971
YR_87	Dummy variable if year = 1987	0.1994
YR_88	Dummy variable if year = 1988	0.2023
YR_89	Dummy variable if year = 1989	0.2052
PCY	Area per capita income (\$000s)	15.3909
MDS	Area physicians per thousand population	1.7863
BEDS	Area hospital beds per thousand population	4.2696
HMO	Area Medicare HMO enrollment rate (proportion enrolled)	0.0469
ASSIGN	Area assignment rate (proportion of allowed charges)	0.7426

Source: Means are based on 0.2 percent Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files; Area Resource File.

TABLE 4-2

TWO-STAGE LEAST SQUARES REGRESSION ESTIMATES (standard errors in parantheses)

	(1)	(2)	(3)	(4)	(5)
MALE	86.14 ^a (8.70)	86.09 ^a (8.70)	86.08 ^a (8.70)	85.69 ^a (8.70)	84.81 ^a (8.69)
BLACK	-151.12 ^a (15.58)	-150.70 ^a (15.62)	-150.36 ^a (15.63)	-142.10 ^a (15.65)	-151.11 ^a (15.65)
AGE LT65	-363.22 ^a (17.90)	-363.17 ^a (17.90)	-363.10 ^a (17.90)	-363.40 ^a (17.90)	-361.49 ^a (17.88)
AGE 70-74	191.92 ^a (11.80)	191.94 ^a (11.80)	191.89 ^a (11.80)	191.34 ^a (11.80)	190.52 ^a (11.78)
AGE 75-89	315.80 ^a (12.90)	315.80 ^a (12.92)	315.70 ^a (12.92)	315.66 ^a (12.90)	315.71 ^a (12.90)
AGE 80-84	352.55 ^a (14.99)	352.57 ^a (14.99)	352.45 ^a (14.99)	351.43 ^a (14.99)	351.59 ^a (14.98)
AGE 85+	278.90 ^a (16.49)	279.00 ^a (16.49)	278.81 ^a (16.49)	277.60 ^a (16.49)	280.38 ^a (16.47)
DISABLED	413.71 ^a (16.08)	413.78 ^a (16.08)	413.85 ^a (16.08)	412.66 ^a (16.08)	410.87 ^a (16.06)
ESRD	5082.10 ^a (66.97)	5082.07 ^a (66.97)	5081.87 ^a (66.97)	5083.54 ^a (66.96)	5088.52 ^a (66.88)
B-ONLY	-115.91 ^a (33.55)	-115.43 ^a (33.55)	-115.36 ^a (33.55)	-119.57 ^a (33.55)	-116.13 ^a (33.52)
MEDICAID	304.69 ^a (14.81)	304.50 ^a (14.82)	304.45 ^a (14.82)	301.68 ^a (14.82)	289.63 ^a (14.83)
NO_CENTRAL	-25.19 ^c (13.31)	-28.84 ^b (14.68)	-33.24 ^b (15.83)	-59.54 ^a (16.18)	30.94 ^c (17.54)
SOUTH	87.99 ^a (14.17)	85.15 ^a (14.97)	83.59 ^a (15.11)	62.68 ^a (15.34)	123.42 ^a (16.00)
WEST	174.34 ^a (14.12)	171.69 ^a (14.82)	174.75 ^a (15.38)	94.21 ^a (18.45)	248.81 ^a (21.82)
URBAN	144.87 ^a (14.78)	154.71 ^a (22.32)	157.10 ^a (22.55)	174.57 ^a (22.66)	188.62 ^a (22.66)
YR_86	56.36 ^a (13.49)	56.19 ^a (13.50)	56.26 ^a (13.50)	52.36 ^a (13.50)	8.85 (15.64)
YR_87	144.04 ^a (13.95)	143.39 ^a (14.01)	143.25 ^a (14.01)	138.70 ^a (14.01)	46.27 ^c (15.64)
YR_88	174.62 ^a (14.94)	173.37 ^a (14.98)	172.62 ^a (15.11)	172.84 ^a (15.11)	2.05 (19.86)
YR_89	242.78 ^a (16.29)	241.28 ^a (16.49)	240.14 ^a (16.57)	245.71 ^a (16.57)	65.39 ^c (21.43)
PCY	29.92 ^a (2.71)	30.67 ^a (2.99)	31.85 ^a (3.38)	27.38 ^a (3.43)	45.84 ^a (3.70)

TABLE 4-2 (continued)

TWO-STAGE LEAST SQUARES REGRESSION ESTIMATES (standard errors in parentheses)

	(1)	(2)	(3)	(4)	(5)
MDS	--	-11.38 (19.35)	-19.27 (22.06)	-42.83 ^c (22.25)	-161.89 ^a (23.98)
BEDS	--	--	5.11 (6.86)	4.90 (6.86)	48.24 ^a (7.59)
HMO	--	--	--	796.31 ^a (100.82)	640.13 ^a (101.40)
ASSIGN	--	--	--	--	924.78 ^a (69.84)
INTERCEPT	-109.52 ^a (37.71)	-104.94 ^a (38.51)	-130.83 ^b (51.89)	-41.00 (53.10)	-956.26 ^a (87.13)
R ² (c)	0.057	0.057	0.057	0.058	0.059
F	926.93 ^a	882.82 ^a	842.74 ^a	811.32 ^a	790.64 ^a

^aSignificant at the one percent level.^bSignificant at the five percent level.^cSignificant at the ten percent level.

Note: A11 observations were weighted by the proportion of the year the individual was eligible for Part B. Standard errors and significance levels have been adjusted to account for correlation of error terms over time resulting from the use of panel data with up to five years of observations on each beneficiary.

Source: Medicare enrollee file constructed from HCFA eligibility data and linked BMAD claims files.

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APPENDIX A

TABLES

TABLE A-1

TRENDS IN HMO ENROLLMENT BY STATE AND URBAN/RURAL LOCATION
(percent of Medicare beneficiaries enrolled)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Alabama	1.0 %	1.1 %	1.1 %	1.0 %	1.0 %
Urban	1.6	1.7	1.6	1.5	1.5
Rural	0.1	0.1	0.1	0.2	0.2
Alaska	1.1	1.0	0.7	0.9	1.2
Urban	0.0	0.0	0.0	1.1	1.0
Rural	1.7	1.6	1.1	0.7	1.3
Arizona	0.8	7.8	8.8	8.6	9.3
Urban	0.6	9.7	11.1	10.9	11.9
Rural	1.4	2.2	2.1	2.2	2.0
Arkansas	0.5	0.5	0.6	0.6	0.6
Urban	0.5	0.5	0.6	0.5	0.5
Rural	0.6	0.5	0.6	0.6	0.6
California	11.7	14.2	16.0	17.2	18.2
Urban	12.2	14.9	16.8	18.0	19.2
Rural	2.9	2.7	3.0	3.3	3.2
Colorado	5.4	7.3	12.3	13.6	14.0
Urban	4.0	6.4	12.5	13.9	14.1
Rural	9.5	10.0	11.9	12.7	13.8
Connecticut	1.6	2.1	2.8	3.2	3.4
Urban	1.6	2.2	2.9	3.3	3.5
Rural	0.0	0.0	0.0	0.0	0.8
Delaware	0.3	0.3	0.3	0.3	0.2
Urban	0.2	0.2	0.2	0.2	0.2
Rural	0.4	0.4	0.5	0.3	0.3
District of Columbia	2.7	3.4	3.5	4.0	4.3
Florida	8.0	8.9	8.9	8.9	9.1
Urban	8.8	9.8	9.6	9.6	9.9
Rural	1.0	1.1	1.0	1.1	1.0
Georgia	0.2	0.3	0.2	0.2	0.3
Urban	0.3	0.4	0.3	0.3	0.4
Rural	0.1	0.1	0.2	0.1	0.1
Hawaii	11.0	17.2	30.3	30.8	29.4
Urban	10.4	17.4	31.7	31.5	30.6
Rural	12.6	16.7	26.4	29.1	26.2
Idaho	0.1	0.2	0.4	0.5	0.6
Urban	0.0	0.5	0.5	0.5	0.3
Rural	0.1	0.2	0.3	0.5	0.7

TABLE A-1 (continued)

TRENDS IN HMO ENROLLMENT BY STATE AND URBAN/RURAL LOCATION
(percent of Medicare beneficiaries enrolled)

STATE	1985	1986	1987	1988	1989
Illinois	3.3 %	4.8 %	4.9 %	5.1 %	5.1 %
Urban	3.6	5.5	5.8	6.0	5.9
Rural	2.2	2.3	2.0	1.9	2.0
Indiana	2.2	3.2	4.2	4.9	3.3
Urban	2.6	3.8	4.8	5.6	3.6
Rural	1.6	2.3	3.0	3.3	2.7
Iowa	1.4	2.1	2.6	2.9	2.9
Urban	2.7	4.2	5.1	5.5	5.4
Rural	0.7	0.9	1.3	1.5	1.5
Kansas	2.2	5.1	5.6	4.1	3.6
Urban	3.7	8.0	8.7	8.3	7.1
Rural	1.1	3.1	3.2	0.9	0.7
Kentucky	3.5	3.4	3.2	2.9	2.9
Urban	1.8	1.8	1.7	0.9	1.2
Rural	4.8	4.5	4.4	4.3	4.2
Louisiana	0.1	0.1	0.1	0.1	0.0
Urban	0.1	0.1	0.1	0.1	0.1
Rural	0.0	0.0	0.0	0.0	0.0
Maine	0.3	0.4	0.4	0.2	0.2
Urban	0.3	0.2	0.3	0.3	0.2
Rural	0.3	0.6	0.4	0.1	0.2
Maryland	0.9	1.1	1.4	1.3	1.2
Urban	1.0	1.2	1.6	1.4	1.3
Rural	0.1	0.0	0.0	0.4	0.4
Massachusetts	3.1	5.9	7.0	6.8	5.3
Urban	3.3	6.3	7.4	7.2	5.6
Rural	0.0	1.1	2.1	1.8	1.6
Michigan	1.4	2.7	4.0	2.2	1.7
Urban	1.9	3.4	4.8	2.6	2.0
Rural	0.1	0.4	0.8	0.2	0.2
Minnesota	17.7	26.4	30.2	24.7	22.7
Urban	29.1	38.7	42.7	37.7	36.0
Rural	4.4	12.2	15.6	9.3	6.8
Mississippi	0.0	0.0	0.0	0.1	0.1
Urban	0.0	0.0	0.0	0.1	0.1
Rural	0.0	0.0	0.0	0.1	0.1

TABLE A-1 (continued)

TRENDS IN HMO ENROLLMENT BY STATE AND URBAN/RURAL LOCATION
(percent of Medicare beneficiaries enrolled)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Missouri	1.6 %	2.2 %	2.6 %	2.9 %	2.9 %
Urban	2.5	3.5	4.0	4.5	4.5
Rural	0.3	0.3	0.4	0.4	0.5
Montana	0.7	0.6	0.7	0.6	0.5
Urban	0.4	0.0	0.0	0.0	0.0
Rural	0.8	0.8	0.9	0.8	0.7
Nebraska	0.3	1.1	1.5	1.6	1.7
Urban	0.8	2.9	4.1	4.0	4.3
Rural	0.0	0.2	0.1	0.2	0.2
Nevada	4.4	11.2	11.0	10.7	8.5
Urban	5.0	12.7	12.5	11.9	9.3
Rural	1.4	2.8	3.2	3.9	4.0
New Hampshire	0.6	0.7	1.0	1.0	0.4
Urban	1.0	1.1	1.5	1.6	0.6
Rural	0.0	0.0	0.0	0.0	0.1
New Jersey	1.8	2.8	3.3	3.3	3.4
New Mexico	3.1	7.9	11.2	7.4	8.3
Urban	3.1	11.9	17.6	10.9	12.5
Rural	3.1	4.3	5.4	4.2	4.5
New York	4.6	5.0	5.5	5.9	6.2
Urban	5.2	5.6	6.1	6.5	6.9
Rural	0.1	0.2	0.3	0.3	0.4
North Carolina	0.2	0.2	0.3	0.4	0.5
Urban	0.2	0.2	0.5	0.5	0.6
Rural	0.2	0.2	0.2	0.3	0.3
North Dakota	1.8	2.1	2.5	2.5	1.3
Rural	0.3	0.7	2.0	1.9	0.0
Urban	2.3	2.6	2.7	2.7	1.8
Ohio	2.3	2.0	2.2	2.4	2.2
Urban	2.5	2.0	2.2	2.4	2.2
Rural	1.8	1.9	2.0	2.2	2.0
Oklahoma	0.5	1.2	1.6	0.8	0.8
Urban	0.4	1.9	2.7	1.1	1.1
Rural	0.5	0.5	0.5	0.5	0.5
Oregon	9.8	13.4	17.0	17.8	18.1
Urban	14.4	19.5	24.6	25.9	26.5
Rural	1.5	2.2	2.9	3.3	3.1

TABLE A-1 (continued)

TRENDS IN HMO ENROLLMENT BY STATE AND URBAN/RURAL LOCATION
(percent of Medicare beneficiaries enrolled)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Pennsylvania	2.1 %	2.7 %	2.7 %	2.7 %	2.5 %
Urban	2.0	2.7	2.8	2.7	2.5
Rural	2.4	2.4	2.6	2.6	2.1
Rhode Island	1.6	1.9	2.2	2.3	2.4
South Carolina	0.0	0.2	0.3	0.1	0.1
Urban	0.0	0.3	0.5	0.1	0.1
Rural	0.0	0.1	0.2	0.2	0.2
South Dakota	0.4	0.5	0.6	0.4	0.0
Urban	0.0	0.0	0.0	0.0	0.2
Rural	0.5	0.6	0.7	0.5	0.0
Tennessee	0.5	0.6	1.2	0.4	0.4
Urban	0.4	0.5	1.4	0.3	0.3
Rural	0.8	0.8	0.7	0.6	0.5
Texas	0.1	0.3	0.5	0.7	0.9
Urban	0.2	0.4	0.7	1.0	1.2
Rural	0.1	0.1	0.1	0.1	0.2
Utah	1.7	1.6	1.7	1.5	1.7
Urban	1.7	1.5	1.6	1.6	1.4
Rural	1.6	1.8	1.9	1.4	2.4
Vermont	0.2	0.2	0.0	0.2	0.1
Urban	0.0	0.0	0.0	0.8	0.8
Rural	0.2	0.2	0.0	0.0	0.0
Virginia	1.8	1.7	1.6	1.6	1.6
Urban	0.7	0.6	0.7	0.6	0.5
Rural	3.6	3.5	3.4	3.3	3.4
Washington	7.5	8.0	8.3	8.9	9.7
Urban	9.0	9.5	9.8	10.4	11.3
Rural	2.4	3.1	3.2	4.3	4.8
West Virginia	10.6	10.5	10.3	10.3	10.0
Urban	4.6	5.4	5.7	5.6	5.5
Rural	14.0	13.4	13.2	13.3	13.0
Wisconsin	0.4	0.9	2.0	2.3	2.3
Urban	0.3	0.7	2.2	2.7	2.7
Rural	0.5	1.2	1.6	1.6	1.5
Wyoming	1.7	1.6	1.5	1.3	1.4
Urban	0.0	0.0	0.0	0.0	0.0
Rural	2.3	2.3	2.0	1.8	1.9

TABLE A-1 (continued)

TRENDS IN HMO ENROLLMENT BY STATE AND URBAN/RURAL LOCATION
(percent of Medicare beneficiaries enrolled)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
All Urban	4.6 %	6.0 %	6.8 %	6.9 %	6.9 %
All Rural	1.5	2.0	2.2	2.0	1.9
Total U.S.	3.8	4.9	5.6	5.6	5.6

TABLE A-2

TRENDS IN ASSIGNMENT RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

STATE	1985	1986	1987	1988	1989
Alabama	76.9 %	77.5 %	84.5 %	88.5 %	90.6 %
Urban	76.2	75.7	84.0	87.3	89.7
Rural	77.9	80.5	85.7	90.4	92.2
Alaska	50.6	46.7	72.2	75.7	83.0
Urban	60.4	51.6	74.8	78.0	87.7
Rural	40.8	41.7	69.5	73.9	79.3
Arizona	60.2	58.6	65.2	71.3	75.2
Urban	59.7	56.4	64.7	69.8	74.2
Rural	62.7	66.3	66.9	76.7	78.4
Arkansas	84.9	75.8	82.3	86.8	88.8
Urban	86.2	78.2	82.9	86.9	89.3
Rural	84.2	74.6	81.9	86.8	88.5
California	71.4	74.0	77.7	82.4	84.2
Urban	71.5	74.3	78.0	82.8	84.5
Rural	68.6	68.1	70.6	76.2	78.3
Colorado	60.0	58.0	64.7	69.8	71.4
Urban	59.3	59.6	64.4	69.7	71.0
Rural	63.1	52.7	65.7	70.3	72.7
Connecticut	69.0	71.3	74.0	77.7	77.6
Urban	64.4	70.8	73.6	77.6	77.4
Rural	98.5	86.7	82.9	82.2	83.7
Delaware	80.8	82.4	84.4	85.0	87.5
Urban	77.0	79.2	80.6	81.6	84.0
Rural	88.6	88.2	91.1	90.6	93.8
District of Columbia	85.6	81.4	89.6	90.4	91.9
Florida	65.1	67.4	71.8	79.0	81.4
Urban	65.3	67.4	71.6	78.9	81.3
Rural	62.7	67.0	74.9	81.3	82.9
Georgia	68.3	68.9	74.0	79.8	82.1
Urban	66.2	65.9	70.9	76.7	79.4
Rural	71.4	73.1	78.2	84.3	86.2
Hawaii	64.7	73.0	76.3	79.8	81.3
Urban	63.7	68.7	75.9	79.8	79.3
Rural	67.4	83.7	77.6	79.7	85.9
Idaho	37.6	36.2	44.2	46.2	50.0
Urban	25.3	27.8	25.9	33.2	42.2
Rural	40.4	37.6	48.1	49.1	51.4

TABLE A-2 (continued)

TRENDS IN ASSIGNMENT RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Illinois	58.5 %	60.9 %	64.7 %	71.3 %	74.2 %
Urban	61.3	63.1	66.9	73.6	76.3
Rural	46.8	51.6	54.9	61.4	64.6
Indiana	53.1	58.5	67.1	93.3	76.0
Urban	55.4	59.9	68.6	94.1	78.1
Rural	47.9	55.2	63.3	91.4	70.6
Iowa	51.9	54.6	61.8	67.8	70.6
Urban	55.8	57.5	65.0	70.7	75.4
Rural	49.7	52.8	59.9	66.0	67.6
Kansas	73.8	73.9	81.6	87.5	87.3
Urban	76.9	77.5	83.2	90.7	85.6
Rural	70.8	70.5	80.2	84.9	88.8
Kentucky	57.4	60.4	72.3	95.5	81.4
Urban	52.8	56.4	69.0	95.0	82.9
Rural	61.3	63.6	74.9	95.9	80.1
Louisiana	61.2	63.9	73.4	82.4	85.9
Urban	60.1	62.7	71.7	82.4	86.2
Rural	63.8	66.4	77.3	82.3	85.1
Maine	80.8	83.1	88.0	90.2	89.8
Urban	78.6	81.2	86.3	88.7	88.7
Rural	83.5	85.3	90.2	91.9	91.0
Maryland	85.9	86.5	89.0	91.5	92.0
Urban	85.8	86.3	88.9	91.4	92.1
Rural	86.7	88.1	89.8	93.2	91.3
Massachusetts	94.0	95.7	97.7	98.2	98.1
Urban	95.1	96.4	97.9	98.4	98.3
Rural	78.7	87.3	94.2	94.7	94.9
Michigan	18.6	96.6	96.4	97.9	98.0
Urban	15.8	97.2	97.0	98.5	98.5
Rural	31.5	93.7	93.1	94.1	94.4
Minnesota	60.1	57.6	56.9	59.5	58.7
Urban	55.5	64.3	65.4	67.2	66.8
Rural	65.1	50.3	48.3	52.2	50.9
Mississippi	68.4	62.6	70.4	76.2	78.2
Urban	69.3	65.7	65.6	71.9	75.9
Rural	68.1	61.8	71.7	77.6	78.9

TABLE A-2 (continued)

TRENDS IN ASSIGNMENT RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Missouri	62.7 %	66.7 %	73.0 %	80.6 %	80.4 %
Urban	64.6	68.1	75.0	81.5	81.4
Rural	58.9	64.0	69.1	79.0	78.5
Montana	43.2	43.3	51.7	52.7	59.9
Urban	36.4	40.6	40.6	37.8	55.5
Rural	45.6	44.3	55.4	57.5	61.4
Nebraska	36.0	41.4	50.8	62.8	66.1
Urban	45.5	50.7	61.9	71.9	75.6
Rural	29.1	35.8	43.0	56.7	59.7
Nevada	82.0	83.2	85.6	91.2	93.6
Urban	84.6	85.8	87.3	91.8	94.4
Rural	63.5	62.4	72.7	86.6	83.7
New Hampshire	65.4	61.3	70.5	77.2	74.1
Urban	67.3	60.5	72.1	76.6	73.2
Rural	61.7	63.1	66.7	78.6	76.0
New Jersey	65.9	65.5	68.3	73.7	73.7
New Mexico	62.7	59.0	66.7	72.3	77.5
Urban	63.5	53.9	68.6	72.4	76.6
Rural	61.8	65.0	64.7	72.1	78.2
New York	74.0	75.0	77.8	93.5	81.7
Urban	74.0	75.0	77.6	94.0	81.5
Rural	73.2	74.6	80.9	86.9	83.7
North Carolina	65.5	65.8	71.0	81.6	79.6
Urban	60.4	61.8	66.5	79.0	77.4
Rural	71.0	70.2	76.2	84.7	82.0
North Dakota	35.1	37.5	45.2	48.1	59.5
Rural	29.7	38.6	42.7	35.2	48.9
Urban	37.7	37.0	46.1	54.4	64.1
Ohio	55.4	57.3	67.2	76.4	79.3
Urban	56.1	58.6	68.0	77.0	79.9
Rural	52.3	52.1	63.2	73.4	76.4
Oklahoma	49.0	49.6	60.8	70.4	73.8
Urban	48.1	48.6	59.9	68.5	71.1
Rural	50.0	50.7	61.8	72.3	76.5
Oregon	44.7	46.1	51.7	58.6	63.2
Urban	46.5	48.1	52.9	62.2	64.7
Rural	41.5	42.7	50.0	53.0	61.0

TABLE A-2 (continued)

TRENDS IN ASSIGNMENT RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Pennsylvania	89.1 %	88.3 %	90.8 %	93.3 %	94.0 %
Urban	89.5	88.9	91.2	93.4	94.3
Rural	86.6	84.3	88.4	92.4	92.2
Rhode Island	93.0	94.8	95.6	96.1	95.8
South Carolina	81.1	78.3	81.2	82.7	85.1
Urban	81.8	79.4	81.2	82.6	84.9
Rural	80.0	76.5	81.2	82.8	85.5
South Dakota	24.4	32.4	37.7	41.9	48.2
Urban	22.3	39.8	33.9	37.6	49.5
Rural	25.0	29.8	38.9	43.3	47.8
Tennessee	60.6	64.5	70.8	80.1	82.4
Urban	57.9	62.1	67.4	78.0	79.8
Rural	65.8	68.8	76.4	84.0	86.8
Texas	64.4	66.3	72.6	78.3	80.5
Urban	65.2	67.3	73.1	79.4	81.3
Rural	62.4	63.7	71.1	75.4	78.4
Utah	63.7	64.3	72.8	77.4	77.1
Urban	65.8	63.0	73.7	77.0	76.2
Rural	59.0	68.4	70.6	78.5	79.6
Vermont	67.0	67.0	80.1	86.8	87.8
Urban	58.1	53.3	76.2	82.3	88.6
Rural	68.9	69.5	81.2	88.2	87.6
Virginia	69.1	70.0	70.8	76.7	78.9
Urban	70.2	71.1	72.7	78.3	80.8
Rural	66.8	67.8	66.6	73.0	74.3
Washington	49.5	50.8	57.7	61.4	63.8
Urban	52.0	51.5	58.8	63.3	65.3
Rural	40.7	48.4	54.5	54.1	59.3
West Virginia	71.9	74.2	77.4	88.7	90.0
Urban	71.6	73.3	76.5	85.7	87.4
Rural	72.2	74.7	78.0	90.8	92.0
Wisconsin	58.3	70.1	59.1	65.4	69.1
Urban	62.8	73.0	61.4	67.7	71.2
Rural	49.3	67.5	53.5	60.2	63.8
Wyoming	47.8	43.6	53.7	54.7	57.3
Urban	43.5	41.2	55.9	57.0	50.8
Rural	49.3	44.5	53.0	53.8	60.8

TABLE A-2 (continued)

TRENDS IN ASSIGNMENT RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
All Urban	67.3 %	72.3 %	76.3 %	82.9 %	82.7 %
All Rural	61.7	65.2	70.7	77.6	78.4
Total U.S.	66.1	70.8	75.1	81.8	81.8

TABLE A-3

TRENDS IN PARTICIPATION RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

STATE	1985	1986	1987	1988	1989
Alabama	53.0 %	53.7 %	62.8 %	72.5 %	75.1 %
Urban	53.6	52.5	62.7	71.0	73.9
Rural	52.0	55.6	62.9	75.1	77.3
Alaska	18.0	26.3	45.3	44.3	50.2
Urban	24.2	27.0	43.5	42.0	57.4
Rural	11.6	25.6	47.2	46.2	44.7
Arizona	26.7	37.6	51.1	55.9	60.5
Urban	26.0	36.0	50.9	54.5	58.8
Rural	29.2	43.0	51.6	61.2	66.3
Arkansas	57.0	5.2	61.2	67.3	69.6
Urban	61.0	5.7	63.3	69.1	71.9
Rural	55.0	4.9	60.1	66.5	68.4
California	40.6	43.1	49.0	58.7	63.3
Urban	40.9	43.3	49.5	59.2	63.7
Rural	35.2	39.0	41.3	50.7	55.8
Colorado	9.1	27.6	34.3	39.9	42.5
Urban	9.1	27.9	33.8	38.4	41.0
Rural	9.1	26.3	36.2	44.9	47.6
Connecticut	39.1	36.6	45.1	55.8	60.3
Urban	30.8	35.7	44.1	55.3	59.7
Rural	93.3	64.9	67.0	77.6	79.0
Delaware	53.1	52.2	57.9	58.7	60.9
Urban	50.8	51.1	53.7	54.7	56.8
Rural	58.0	54.1	65.2	65.3	68.3
District of Columbia	54.1	62.0	72.0	74.7	77.7
Florida	33.3	34.1	41.1	53.2	55.7
Urban	33.5	34.3	41.1	53.0	55.5
Rural	30.5	32.2	41.4	55.9	57.7
Georgia	36.0	34.3	41.6	54.8	59.9
Urban	35.9	33.7	40.6	52.5	59.2
Rural	36.1	35.1	43.0	58.1	61.1
Hawaii	38.3	50.8	57.9	59.1	62.9
Urban	35.9	46.7	55.2	57.4	60.0
Rural	44.6	61.1	65.5	64.9	69.7
Idaho	12.3	16.1	20.6	23.3	20.0
Urban	14.5	15.1	12.8	12.0	19.3
Rural	11.9	16.3	22.2	25.7	20.1

TABLE A-3 (continued)

TRENDS IN PARTICIPATION RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

STATE	1985	1986	1987	1988	1989
Illinois	29.1 %	33.6 %	38.7 %	50.1 %	54.1 %
Urban	31.1	35.3	41.3	52.8	56.6
Rural	20.7	26.6	27.3	38.8	42.8
Indiana	30.1	33.3	43.6	75.4	57.1
Urban	31.4	34.9	45.5	76.1	60.2
Rural	27.4	29.5	38.7	73.7	49.0
Iowa	30.1	28.9	39.6	44.6	51.4
Urban	35.0	32.5	42.9	51.6	58.9
Rural	27.3	26.7	37.6	40.3	46.7
Kansas	53.9	54.3	67.8	74.7	74.7
Urban	57.0	57.5	70.2	77.6	72.2
Rural	50.9	51.2	65.8	72.4	77.0
Kentucky	28.4	27.3	43.1	81.1	59.0
Urban	28.4	25.3	41.5	79.6	60.9
Rural	28.5	28.8	44.4	82.4	57.3
Louisiana	26.3	3.2	45.8	59.3	67.0
Urban	27.3	2.9	46.6	60.4	68.1
Rural	24.0	3.7	43.9	56.8	64.4
Maine	50.0	53.8	68.4	73.1	71.7
Urban	52.2	57.0	68.8	74.0	73.1
Rural	47.2	50.1	67.9	72.2	70.0
Maryland	43.5	45.5	55.2	59.3	62.1
Urban	43.6	45.1	55.3	59.3	62.1
Rural	42.0	49.5	53.8	58.9	61.8
Massachusetts	68.4	76.1	88.3	88.8	87.9
Urban	69.6	77.4	88.7	89.0	88.2
Rural	50.7	60.0	83.0	85.6	83.7
Michigan	---	65.0	72.5	76.9	79.0
Urban	---	68.3	75.1	80.1	81.9
Rural	---	48.9	56.7	58.0	61.5
Minnesota	43.0	16.0	21.8	23.3	24.5
Urban	36.3	20.3	30.4	33.8	31.5
Rural	50.4	11.4	13.1	13.4	17.7
Mississippi	27.9	0.3	45.7	57.6	61.7
Urban	26.0	29.5	41.5	55.4	58.8
Rural	28.5	30.9	46.9	58.3	62.6

TABLE A-3 (continued)

TRENDS IN PARTICIPATION RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Missouri	31.7 %	32.8 %	40.8 %	52.3 %	52.8 %
Urban	34.0	35.9	43.4	54.3	54.6
Rural	27.3	27.0	35.9	48.7	49.3
Montana	3.8	23.0	25.7	27.9	32.7
Urban	0.1	17.5	19.4	23.0	37.3
Rural	5.1	25.0	27.8	29.5	31.1
Nebraska	18.8	18.0	30.8	45.6	48.8
Urban	25.3	25.9	42.3	56.1	59.2
Rural	14.1	13.2	22.8	38.5	41.7
Nevada	45.1	56.3	70.1	79.9	84.5
Urban	47.1	57.6	71.8	80.5	85.7
Rural	31.1	45.4	56.2	74.5	70.2
New Hampshire	43.7	36.1	49.1	53.6	51.1
Urban	44.1	33.5	49.4	55.4	50.8
Rural	43.0	42.6	48.4	49.5	51.6
New Jersey	28.5	28.9	33.5	42.5	47.2
New Mexico	35.7	35.0	45.6	50.3	56.9
Urban	38.3	32.5	47.2	50.7	60.7
Rural	33.0	38.0	43.9	49.9	53.7
New York	31.7	36.5	47.4	81.1	52.1
Urban	30.9	35.8	46.6	82.0	51.5
Rural	42.6	46.7	58.9	70.0	58.9
North Carolina	36.6	37.3	43.7	59.3	57.4
Urban	32.3	33.2	38.7	56.9	54.8
Rural	41.3	41.8	49.5	62.2	60.2
North Dakota	9.6	3.3	8.7	9.9	37.2
Rural	7.6	2.6	12.8	8.2	28.4
Urban	10.5	3.6	7.1	10.7	41.1
Ohio	28.4	4.4	41.8	55.6	60.5
Urban	29.0	4.3	42.3	56.1	61.2
Rural	25.9	4.9	39.6	53.0	57.5
Oklahoma	17.0	23.8	39.9	45.9	49.9
Urban	17.6	23.6	39.2	45.5	48.8
Rural	16.4	24.1	40.6	46.4	50.9
Oregon	15.3	22.0	29.4	37.6	38.0
Urban	15.8	21.9	30.4	40.2	40.2
Rural	14.3	22.2	27.8	33.5	34.8

TABLE A-3 (continued)

TRENDS IN PARTICIPATION RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Pennsylvania	64.8 %	66.5 %	70.2 %	77.2 %	80.3 %
Urban	66.0	67.6	70.7	77.6	80.8
Rural	56.8	59.2	66.7	74.4	76.3
Rhode Island	56.1	75.1	78.9	82.1	75.3
South Carolina	24.3	21.5	25.5	27.5	61.5
Urban	25.3	22.7	26.2	27.6	62.5
Rural	22.8	19.7	24.5	27.4	59.7
South Dakota	9.5	4.6	7.4	5.4	20.5
Urban	9.4	4.9	4.3	2.5	22.7
Rural	9.6	4.4	8.3	6.3	19.9
Tennessee	30.5	29.9	40.6	53.3	58.3
Urban	31.0	29.0	37.8	51.5	57.1
Rural	29.6	31.5	45.3	56.8	60.3
Texas	26.9	24.7	36.5	45.4	50.8
Urban	27.6	26.1	37.5	47.4	52.5
Rural	25.0	20.9	33.8	40.0	46.1
Utah	3.8	43.6	56.5	59.5	58.8
Urban	2.3	41.5	56.3	59.0	57.4
Rural	7.3	50.0	57.2	61.0	62.6
Vermont	39.2	38.4	55.5	65.1	66.3
Urban	31.5	25.2	55.8	73.0	77.5
Rural	40.8	40.8	55.4	62.7	63.3
Virginia	41.8	41.0	48.7	57.2	63.3
Urban	44.8	43.5	51.8	60.3	66.6
Rural	35.7	35.9	41.5	50.2	55.4
Washington	1.6	24.0	31.4	34.6	4.3
Urban	1.6	24.0	31.5	36.0	3.8
Rural	1.5	24.2	31.0	29.1	5.5
West Virginia	42.5	6.4	55.0	71.7	73.8
Urban	45.4	6.3	52.1	67.9	72.2
Rural	40.6	6.5	57.0	74.6	75.1
Wisconsin	35.2	22.7	34.0	39.3	45.2
Urban	41.1	21.5	39.5	44.8	51.5
Rural	23.3	23.8	21.1	27.1	30.3
Wyoming	19.0	23.9	28.0	37.0	38.3
Urban	20.7	16.6	23.2	33.9	25.8
Rural	18.4	26.5	29.6	38.2	45.2

TABLE A-3 (continued)

TRENDS IN PARTICIPATION RATES BY STATE AND URBAN/RURAL LOCATION
(percent of allowed charges)

<u>STATE</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
All Urban	36.2 %	36.2 %	36.2 %	36.2 %	36.2 %
All Rural	31.7	31.7	31.7	31.7	31.7
Total U.S.	35.2	35.2	35.2	35.2	35.2

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